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U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Oyster Creek Generating Station
Facility Operating License No. DPR-16
Docket No. 50-219

Subject: Supplement to Oyster Creek License Amendment Request No. 326 – Clarification of Control Rod Operability Requirements (TAC MC3309).

Reference: 1. AmerGen Letter No. 2130-04-20072, dated May 20, 2004, License Amendment Request No. 326 – Clarification of Control Rod Operability Requirements (TAC MC3309).

This letter is being sent to supplement License Amendment Request (LAR) No. 326 to modify Technical Specification (TS) requirements for control rod operability requirements (Reference 1). This supplemental letter provides information in response to NRC request for additional information as described in an email from P. S. Tam – NRC to D. L. Robillard – AmerGen, and discussed in a conference call on September 30, 2004, regarding the referenced LAR. The additional information is provided in Enclosure 1.

There are no additional regulatory commitments contained in this letter.

We are notifying the State of New Jersey of this supplement to the application for changes to the Technical Specifications by transmitting a copy of this letter and its attachment to the designated State Official.

If any additional information is needed, please contact Dave Robillard at (610) 765-5952.

I declare under penalty of perjury that the foregoing is true and correct.

Sincerely,

10/19/2004
Executed On

C. N. Swenson
Site Vice President
Oyster Creek Generating Station
AmerGen Energy Company, LLC

A001

Enclosure: (1) Response to Request for Additional Information

cc: S. J. Collins, Administrator, USNRC Region I
R. J. Summers, USNRC Senior Resident Inspector, Oyster Creek
P. S. Tam, USNRC Senior Project Manager, Oyster Creek
K. Tosch, Director, Bureau of Nuclear Engineering, New Jersey Department of Environmental Protection
File No. 04032

ENCLOSURE 1

OYSTER CREEK

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
LICENSE AMENDMENT REQUEST No. 326
CLARIFICATION OF CONTROL ROD OPERABILITY REQUIREMENTS

1. **NRC Question**

Page 4 of 7 of the application states that maintenance is normally performed on more than one control rod at the same time.

a. Please explain what normal hydraulic control unit (HCU) maintenance consists of.

b. According to current plant HCU maintenance practice procedures, is there a maximum number of control rods permitted to be valved out-of-service at the same time while undergoing maintenance? Is this number expected to remain the same or increase with the proposed changes?

c. Of the total number of controls rods permitted to be valved out-of-service during the maintenance period, how many of these rods are fully inserted? Is this number expected to remain the same or increase with the proposed changes?

Response

a. Normal HCU Preventative Maintenance (PMs) includes:
   1. Scram Valve Operator Replacement or rebuild
   2. Scram Pilot valve replacement or rebuild
   3. Accumulator leaks or repairs
   4. Various valve seat repairs
   5. Directional Control Valve replacement or rebuild
   6. Scram Valve limit switch replacement or rebuild
   7. Valve packing adjustment or replacements
   8. Filter replacements

   Corrective maintenance would include maintenance on any of the above components that indicate degraded performance while in-service. Items 1, 2, 3 & 4 can affect the rod's scram function, while items 5, 7 and 8 can affect the rod's notch function. Item 6 is for indication purposes only.

b. Currently, Maintenance & Operations procedures and Technical Specifications (TS) only allow six inoperable control rods to be valved out of service at a time. The purpose of this TS change is to allow the valving out of operable control rods for maintenance, at their fully inserted position, without declaring them inoperable. Therefore, the total number of controls rods valved out of service, both inoperable and those valved out at the fully inserted position for maintenance, could exceed six. The number of control rods valved out of service due to being inoperable will continue to be limited to six at a time.

c. Routine maintenance practice at Oyster Creek is to fully insert the control rods prior to valving them out of service for maintenance. In the past five years, only three instances have occurred of valving an inoperable control rod out of service for maintenance, when not fully inserted. In each instance, a ShutDown Margin (SDM) calculation was performed as required by TS 3.2.A. Valving an inoperable control rod out of service for maintenance at other than the fully inserted position is done by exception, and only when inserting the control rod would have an adverse impact on plant operations. No inoperable control rods have been valved out of service for maintenance at a position other than fully inserted in the last two years. Any partially or fully withdrawn control rod valved out of service for maintenance is considered inoperable and will count toward the TS limit of six. The TS change being proposed would not remove the requirement that six inoperable rods can be valved out of service. The basis statement only clarifies that "Operable rods that have been taken out of service at the fully inserted position to perform HCU maintenance are not to be considered as inoperable control rods" because they have been tagged in their failed safe position. The flexibility to not include operable control rods that are fully inserted and valved out for HCU maintenance in the TS limit of six inoperable control rods, will most likely result in an increase in the number of control rods fully inserted and valved out for maintenance.

2. **NRC Question**

TS 3.2.B.4 defines an inoperable control rod as one that cannot be moved with control rod drive pressure. During maintenance of the HCU, more than one control rod is valved out-of-service and therefore cannot be moved with control rod drive pressure. The staff believes that any control rod not capable of being moved with control rod drive pressure is considered inoperable. Furthermore, the intent of TS 3.2.B.4 is not only directed at stuck rods but all inoperable control rods. In the case of partially or fully withdrawn control rods undergoing maintenance, their safety functions are not capable of being met since while valved out-of-service they are not able to be fully inserted with control rod drive pressure in the event a reactor scram is needed. You proposed to revise the first sentence of TS 3.2.B.4 by adding the phrase "In service" in front of "control rods." This statement may be misleading and possibly states that partially or fully withdrawn control rods are considered operable even when valved out-of-service. For clarification, please consider the definition of an "in service" control rod as opposed to an operable control rod. Please explain why partially or fully withdrawn control rods valved out-of-service for maintenance should still be considered operable based on the definition of operability on TS page 1.0-1.

Response

TS 1.1 states that a component shall be OPERABLE or have OPERABILITY when it is capable of performing its specified function(s). The safety function of a control rod and its supporting systems is to be able to be fully inserted when required via a scram. A control rod that is OPERABLE, and has been fully inserted and valved out for maintenance, such that it cannot be moved is fulfilling its specified function, and therefore satisfies the definition of being OPERABLE. A fully or partially withdrawn control rod that cannot be moved with control rod drive pressure (e.g., scram) is not considered OPERABLE because it cannot perform its intended function. Therefore, it is declared inoperable prior to valving it out, and the requirements of TS 3.2.B.4 apply.

This TS amendment request does not change the limit of a maximum of six inoperable control rods. The addition to the TS Bases specifically states that "Operable rods that have been taken out of service at the fully inserted position to perform HCU maintenance are not to be counted as inoperable control rods". The existing TS requirements to perform the SDM calculation (TS 3.2.A) prior to valving out a partially or fully withdrawn control rod for maintenance, and to declare a partially or fully withdrawn control rod that cannot be moved with control rod drive pressure as inoperable are maintained.

3. **NRC Question**

The Standard Technical Specification-General Electric Plants (STS), BWR/4, NUREG-1433, Revision 3, applies the control rod operability requirements to "withdrawn stuck control rods" and "inoperable" control rods. You stated that the STS excludes operable control rods, valved out-of-service for on-line maintenance from consideration as inoperable control rods. The staff may not agree that operable control rods, valved out-of-service for on-line maintenance are excluded from inoperable control rods based on STS LCO 3.1.3.C which addresses control rods that are inoperable for reasons other than LCOs 3.1.3.A and 3.1.3.B (stuck rods). The staff believes that control rods valved out-of-service for maintenance fall under LCO 3.1.3.C are still considered inoperable. Therefore, please justify how the proposed clarification change (Proposed Change 1) is consistent with the content of the current STS.

Response

The Standard Technical Specification-General Electric Plants (STS), BWR/4, NUREG-1433, Revision 3 (STS), Bases for Specification 3.1.3 states that "The OPERABILITY of an individual control rod is based on a combination of factors, primarily, the scram insertion times, the control rod coupling integrity and the ability to determine the control rod position". Additionally, STS Specifications 3.1.4, 'Control Rod Scram Times," 3.1.5, "Control Rod Scram Accumulators," and

3.1.6, "Rod Pattern Control" provide requirements for "other reasons for declaring control rods inoperable." These are the conditions which TS 3.1.3.C are intended to address (e.g., slow scram time or position not known, etc). If the control rod was fully operable prior to valving it out of service for maintenance, nothing in STS requires that it be declared inoperable if it is in the fully inserted position. Valving out of an OPERABLE control rod drive in the fully inserted position, for preventive or proactive corrective maintenance, that is not the result of unacceptable scram insertion times, questionable control rod coupling integrity, or the inability to determine control rod drive position, should not make the control rod INOPERABLE because it is performing its intended function. This is fully within the intent of the STS Bases.

4. **NRC Question**

Technical Specification (TS) 3.2.B.4 requires the plant to shutdown with more than six control rods valved out-of-service. Please explain what has changed in the previous maintenance practice or plant operation that now generates a problem in meeting the limit of six allowable inoperable control rods stated in TS 3.2.B.4 and triggers the accelerated control rod exercise requirement of surveillance requirement (SR) 4.2.D.

Response

Due to the increased length of operating cycles (24 months vs. 12 months) and the cost of extended refueling outages, it is desirable to perform more preventive maintenance and proactive corrective maintenance on-line, to assure that the control rod drive system operates in a highly reliable manner. Scheduling performance of this maintenance during planned, scheduled power reductions provides for the increased reliability of the system. Including OPERABLE control rods that are fully inserted and valved out for HCU maintenance in the population of INOPERABLE control rods could significantly limit the number of OPERABLE control rods that maintenance could be performed on during an operating cycle.

Furthermore, current TS 4.2.D requires increased exercising of the control rods in the event that two control rods are declared inoperable, to provide assurance of the reliability of the remaining control rods. Performing this more frequent exercising because one or more fully OPERABLE controls rods have been fully inserted and valved out for HCU maintenance serves no useful purpose.

5. **NRC Question**

TS 3.2.B.4 states that inoperable control rods shall be valved out-of-service, in such positions that Specification 3.2.A is met. Since more than one control rod is normally undergoing maintenance at the same time, please demonstrate that Specification 3.2.A can still be met even with the proposed additional number of

control rods fully inserted and valved out of service during maintenance. It must be confirmed that shutdown margin can still be maintained without the assistance of negative reactivity from the fully inserted control rods valved out-of-service during the maintenance period.

Response

Procedural and TS requirements are and will remain that any rod valved out of service at other than the fully inserted position is declared inoperable and required to have documentation showing that formal ShutDown Margin (SDM) is maintained in accordance with TS and current core conditions.

Routine maintenance practice is that no rods are valved out of service for maintenance at other than in the fully inserted position. Requiring the control rod to be fully inserted prior to valving it out for maintenance ensures that the control rod is providing its maximum contribution to SDM.

6. **NRC Question**

Page 3 of 7 of your application states "for control rods that exhibit less than optimum positioning performance, corrective maintenance on their HCUs is scheduled. Additionally, other components will be scheduled for proactive maintenance based on vendor and industry experience." Please give examples of vendor and industry experiences causing a need for proactive maintenance on the HCUs.

Response

Examples are CRDs that double notch due to cooling water check valve seat leakage or Directional Control Valve misoperation. Both of these HCU component issues have occurred at Oyster Creek and do not affect the ability of the rod to scram but do affect the rod's ability to notch reliably on a single notch request. Proactive preventive maintenance activities are listed in the response to Question 1(a) above.

7. **NRC Question**

Also Page 3 of 7 of your application states "Considering the limited duration of the scheduled power reductions, normally more than one control rod is removed from service at the same time to perform HCU maintenance."

a. Please state the duration of the scheduled power reductions at which HCU maintenance is performed.

b. At what reduced power level is the HCU maintenance performed?

Response

a. Down powers are scheduled around low power demand periods (i.e., weekends and back shifts) and when multiple surveillances or maintenance is required. Durations typically last from 4 hours to 48 hours.

b. This depends on the effect of the rod being fully inserted and the power reduction required to recover the rod. Typically, it is <95% and more commonly at approximately 80% power when other core maneuvers or plant surveillances are being performed.